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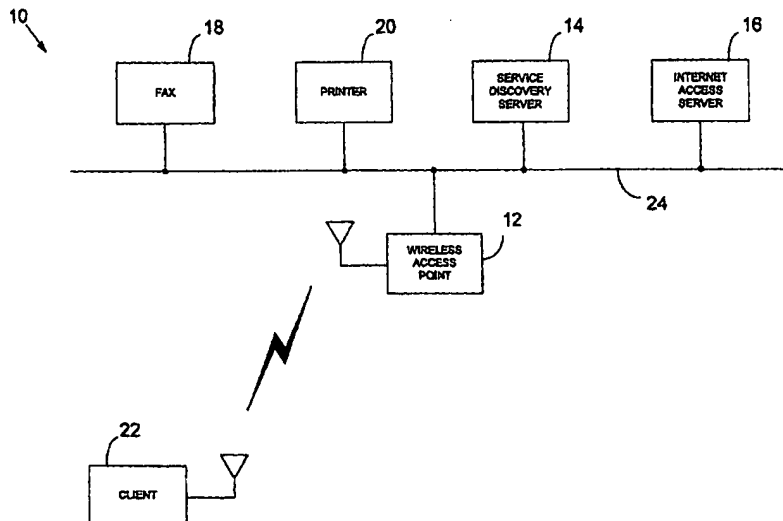
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FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,

[Continued on next page]

(54) Title: SERVICE DISCOVERY METHOD FOR WIRELESS LOCAL AREA NETWORKS (WLAN)



(57) Abstract: A wireless local area network (WLAN) comprises - a wireless access point including a memory to store information relating to services available in an associated network, a wireless transceiver to provide wireless communication with one or more wireless client devices and a controller to generate a services availability signal using information from said memory and to cause said wireless transceiver to transmit said services availability signal; and - a wireless client device that receives the services availability signal from said wireless transceiver of said wireless access point and displays network service information to a user of the wireless client device based thereon.

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/JP2004/033067

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04L12/28 H04L29/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H04L H04Q H04M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 022 876 A (INTERNATIONAL BUSINESS MACHINES CORPORATION) 26 July 2000 (2000-07-26)	1,3-6,8, 10,17,36
Y	figure 1 paragraph '0018! paragraph '0032! paragraphs '0038! - '0042! paragraphs '0047! - '0049! paragraphs '0056!, '0058! paragraphs '0062!, '0066!, '0067! ----- -/--	2,7,9, 11-16, 27-35,37

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

A document defining the general state of the art which is not considered to be of particular relevance

E earlier document but published on or after the International filing date

L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the International filing date but later than the priority date claimed

T later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

G document member of the same patent family

Date of the actual completion of the International search

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/033067

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2003/027525 A1 (MOORE VICTOR S ET AL) 6 February 2003 (2003-02-06)	2,9, 11-13, 15-17, 27-33,35 18-26
Y	abstract figures 1,2,4,5 paragraphs '0009!, '0010! paragraphs '0020! - '0025! paragraphs '0032!, '0035! - '0038! claim 5 paragraphs '0027! - '0029!	
Y	BETTSTETTER C ET AL: "A comparison of service discovery protocols and implementation of the service location protocol" EUNICE - OPEN EUROPEAN SUMMER SCHOOL, XX, XX, 13 September 2000 (2000-09-13), pages 1-8, XP002279616 pages 3-4; "2.1 Service Location Protocol (SLP)"	2,11,17, 27
Y	CZERWINSKI S E ET AL: "AN ARCHITECTURE FOR A SECURE SERVICE DISCOVERY SERVICE" MOBICOM '99. PROCEEDINGS OF THE 5TH ANNUAL ACM/IEEE INTERNATIONAL CONFERENCE ON MOBILE COMPUTING AND NETWORKING. SEATTLE, WA, AUG. 15 - 20, 1999, ANNUAL ACM/IEEE INTERNATIONAL CONFERENCE ON MOBILE COMPUTING AND NETWORKING, NEW YORK, NY : ACM, US, vol. CONF. 5, 15 August 1999 (1999-08-15), pages 24-35, XP000896069 ISBN: 1-58113-142-9 page 24, right-hand column, lines 36-39	7,14,34
P,X	EP 1 435 721 A (NOKIA CORPORATION) 7 July 2004 (2004-07-07) abstract figures 1-3 paragraphs '0012! - '0022!	1,2,11, 12, 27-29,36
Y	US 2003/013477 A1 (MCALINDEN PAUL) 16 January 2003 (2003-01-16) abstract figure 1 paragraphs '0007!, '0009!, '0013! - '0016!	18-26,37
P,A	US 2003/217168 A1 (ADACHI TOMOKO ET AL) 20 November 2003 (2003-11-20) paragraphs '0029!, '0034!, '0035!, '0042!, '0043!, '0059!	19-23
A	& JP 2003 289306 A (TOSHIBA CORP) 10 October 2003 (2003-10-10)	19-23

INTERNATIONAL SEARCH REPORT

national application No.
PCT/US2004/033067

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International Application No. PCT/US2004 /033067

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-17,27-36,38

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1.1. claims: 1,2,11-17,27-36

receiving service availability information from a service discovery server at a wireless access point and storing said information in a memory of said wireless access point

1.2. claims: 3-10,38

characteristics of a services signal comprising service : availability information transmitted from a wireless access point

2. claims: 18-26, 37

receiving and processing service availability information received at a wireless client device during power save mode

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/US2004/033067

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 1022876	A	26-07-2000	EP 1022876 A1	26-07-2000
			CA 2295397 A1	25-07-2000
			JP 3484126 B2	06-01-2004
			JP 2000224197 A	11-08-2000
			US 6532368 B1	11-03-2003
US 2003027525	A1	06-02-2003	NONE	
EP 1435721	A	07-07-2004	US 2004199616 A1	07-10-2004
			EP 1435721 A2	07-07-2004
US 2003013477	A1	16-01-2003	NONE	
US 2003217168	A1	20-11-2003	JP 2003289306 A	10-10-2003
JP 2003289306	A	10-10-2003	US 2003217168 A1	20-11-2003